

Exemption No. 7779B

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

F.S. Air Service, Inc.

for an exemption from § 25.857 of Title 14,
Code of Federal Regulations

Regulatory Docket No. FAA-2001-11150

GRANT OF EXEMPTION

By letter dated September 5, 2011, Mr. Frederick Lee Mason, President, F.S. Air Service, Inc., 1201 Delaney Park Dr., Orlando, FL, 32806, petitioned for a revision to previously granted Exemption No. 7779A, providing relief from the requirements of Title 14, Code of Federal Regulation (14 CFR) 25.855(a), pertaining to cargo or baggage compartments. The revision to the exemption was requested for CASA Model C-212-DF (CASA-212-300) series airplanes, to be modified by F.S. Air Service under type certificate ST02257AK, to be operated in a passenger/cargo combined (or “combi”) configuration.

This exemption amends Exemption No. 7779A to include the additional airplane model. The prior exemption was requested for CASA Model C-212-CC and -CD series airplanes to be modified by F.S. Air Service under Supplemental Type Certificate ST02257AK, to be operated in a passenger/cargo combined configuration. The original Exemption No. 7779 provided relief from § 25.857(b)(3), which specifies that a Class B cargo compartment must contain a separate, approved smoke-detector or fire-detector system to provide warning at the pilot or flight-engineer station. In the absence of such a system, F.S. Air Service, Inc., was permitted to add a crewmember to monitor the cargo area and who would take appropriate action in the event of fire. The current exemption permits F.S. Air Service, Inc., to substitute smoke-and-fire detectors, of the type used in buildings, for the smoke-and-fire detectors typically approved for use in airplanes; and removes the requirement to add a crewmember to monitor the cargo area and who would take appropriate action in the event of a fire.

The petitioner requests relief from the following regulations:

Section 25.855 specifies that, for each cargo and baggage compartment not occupied by crew or passengers, the following apply: Paragraph (a) specifies that the compartment must meet one of the class requirements of § 25.857.

Related sections of 14 CFR

Section 25.857 classifies cargo compartments as Class A, B, C or E, and specifies the requirements for each in terms of access, smoke and fire detection, fire extinguishers, and related matters.

Section 25.831 – Ventilation

(e) Except as provided in paragraph (f) of this section, means must be provided to enable the occupants of the following compartments and areas to control the temperature and quantity of ventilating air supplied to their compartment or area independently of the temperature and quantity of air supplied to other compartments and areas:

(1) The flight crew compartment.

(2) Crewmember compartments and areas other than the flight crew compartment unless the crewmember compartment or area is ventilated by air interchange with other compartments or areas under all operating conditions.

(f) Means to enable the flight crew to control the temperature and quantity of ventilating air supplied to the flight crew compartment independently of the temperature and quantity of ventilating air supplied to other compartments are not required if all of the following conditions are met:

(1) The total volume of the flight crew and passenger compartments is 800 cubic feet or less.

(2) The air inlets and passages for air to flow between the flight crew and passenger compartments are arranged to provide compartment temperatures within 5 degrees F of each other and adequate ventilation to occupants in both compartments.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's Revision A request, submitted on April 15, 2003. The latest petition requests only to add the CASA Model C-212-DF (CASA-212-300) series airplanes to the previously exempted Models C-212-CC and -CD series airplanes. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at <http://regulations.gov>, in Docket No. FAA-2001-11150.

BACKGROUND

F.S. Air Service received an exemption from regulation in May of 2002 for the same project; the exemption is No. 7779. This exemption is based on 14 CFR 25.857 (b)(3) and has three (3) provisions of the exemption, which is primarily concerned with fire detection. The provisions are as follows:

1. A third trained crewmember must be on board to continuously monitor the cargo area for smoke and fire.
2. The crewmember must be properly equipped with approved fire extinguishing and breathing equipment and fire gloves, as required by the regulations.
3. The cargo compartment must be equipped to provide adequate visual access and environmental conditions for the crewmember to evaluate conditions in the cargo compartment and be able to take appropriate action.

The cost of operating with the third crewmember is economically burdensome to F.S. Air Service.

F.S. Air Service has been attempting to certify a CASA C-212 CD in a configuration that can carry cargo and passengers on the main deck at the same time. F.S. Air Service's efforts to obtain an STC have been unsuccessful, due in part to the following reasons:

According to an Issue Paper originating from the New York [Aircraft Certification Office and the Transport Airplane Directorate] TAD November 16, 1999, it is questionable whether the smoke detector in the aft cargo area meets the one minute detection criteria as required by 14 CFR 25.858(a).

In June of 2000 FSDO PMI's were instructed to ensure that each transport category, field-approved, cargo modified aircraft have readily available means to verify conformity. Basically, coordinated field approved [Airplane Flight Manual] AFM Supplements were no longer valid. F.S. Air Service was informed that this was a closed issue and that all other operators were affected equally.

However one operator, which had obtained an STC in 1999, continued to operate their CASA in combi configuration. A second operator obtained a STC in mid 2001 and began operating their CASA's in this manner. F.S. Air Service submitted a request May 15, 2001 for a STC which was given Project # STO548AK-T and the PSCP process was started. This proceeded through the middle of July when ... the project was put on hold. Citing problems with the existing STC's we would have to wait till they were resolved.

The delays encountered in obtaining an STC have negatively impacted F.S. Air Service and its customers in several ways. It has created a lack of confidence in F.S. Air Service within the Alaskan community due to our perceived inability to complete the project. To accommodate our customers we have to load the passengers in a second aircraft.

Meanwhile, our competitors continue to operate in the combi configuration.

NATURE & EXTENT OF RELIEF SOUGHT

F.S. Air Service desires to obtain an STC for the combined carriage of passengers and cargo. An exemption from the existing classes of cargo compartments is sought by equivalent level of safety. The classification of the cargo area is to be considered Class F, with the following requirements:

A Class F cargo or baggage compartment is one in which...

1. There are means to extinguish or control a fire without requiring a crewmember to enter the compartment;
2. There are means to exclude hazardous quantities of smoke, flames, or extinguishing agent, from any compartment occupied by the crew or passengers;
3. There is a separate approved smoke detector or fire detector system to give warning at the pilot or flight engineer station.

Further, F.S. Air Service desires an exemption for the *approved* smoke detector. It is requested to allow the use of inexpensive building type smoke detectors, with provisions for testing and remote indication. The aerospace smoke detectors are very expensive and not packaged for rough handling. Prices for the aircraft smoke detector are \$3,000 per detector plus monitoring controls – high quality building detectors cost \$30. Using the building type detectors would allow more detectors to be used. It is proposed that a series of building type smoke detectors be installed under fire containment covers covering the cargo. At least two detectors would be installed under each blanket and two [warning indicators] would be installed in the cockpit, allowing for redundant detection in each segregated cargo area as well as redundant annunciation. These detectors would be wired in parallel with a test feature and remote [light emitting diode] LED and alarm provisions.

The fire containment covers will be installed around all cargo, except obviously non-flammable items, such as metal stock, machinery, non-flammable fluids without flammable packaging, etc. The covers will be completely wrapped with the fire containment blankets – under, over and around the cargo. The cargo restraint nets will be

installed over the blankets. A fabric valve will be installed on the covers to allow fire fighting attempts without removing or loosening the covers.

F.S. Air Service is willing to add the requirement that additional fire extinguishers be carried on the aircraft.

Due to the relatively small fleet size of the CASA 212 aircraft in Alaska and the short time restraints, we request that the "Public Comment" period be waived.

INFORMATION IN SUPPORT OF THIS PETITION

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in title 14 of the CFR in a manner affecting interstate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish such regulatory distinctions as he or she considers appropriate. The requirement for meeting the requirements of class B cargo space adversely affects F.S. Air Service from an operations cost standpoint. They compete against smaller operators flying part 23 aircraft, which are allowed to fly in the combi mode, without segregation of the cargo per 23.787(b), nor separate smoke detection or elimination procedures.

14 CFR 25.831(e) outlines the requirement for separate ventilating and heating air systems for the cockpit and other compartments.

A description of the heating and ventilation system is as follows:

HEATING

An identical system on each engine bleeds compressed hot air from the turbine plenum. Each system ducts the air through a flow restrictor to a temperature-regulating valve located in the wing leading edge root. The heating lever located in the cockpit overhead panel manually controls this valve. The lever is connected to the valve by control rods and Teleflex cables. The lever positions the valve to regulate the hot bleed air that passes through it to mix with the cabin recirculating air to control cabin and cockpit temperature. The regulated air flows through a shut off valve into a manifold, which delivers the air through ducts in the lower cabin wall and cockpit.

VENTILATING

Ram ambient air is ducted to the aircraft interior through five fuselage intakes. An intake on either side of the forward fuselage ducts fresh air to the cockpit. Each pilot has a

diffuser to control the air. A separate intake ducts cooling air to the radio rack and electrical cabinet. An intake on either side of the center fuselage forward of the wing leading edge ducts individually controlled cabin diffusers.

SMOKE AND FUME ELIMINATION

From Section 2, Emergency Procedures of the C-212 AIRPLANE FLIGHT MANUAL:

- | | | |
|---|--|------------------|
| 1 | Oxygen Masks | DONNED/100% OXY. |
| 2 | OXYGEN MAIN LINE VALVE | OPEN |
| 3 | Smoke Goggles | PUT ON |
| 4 | HEATING Lever | CLOSE |
| | The crew should attempt to close off the source that might aggravate the smoke or fumes. | |
| 5 | RAMP & CARGO DOORS Handle | OPEN AS REQD. |
| | Maximum permissible airspeed with cargo door open is 170 KIAS. | |
| | Return handle to NORMAL after cargo door is opened. | |
| 6 | PASSENGERS ACCESS DOOR | OPEN AS REQD. |
| 7 | COCKPIT WINDOWS | OPEN AS REQD. |

NOTE

The cockpit windows should not be opened concurrently with the rear access door and/or the ramp and cargo doors as this may cause smoke to be drawn into the cockpit. Smoke concentration will dissipate in approximately 30 seconds.

COMMENTS IN THE PUBLIC INTEREST

F.S. Air Service's interest in this petition is to offer a 5000-pound payload aircraft capable of delivering supplies and personnel to remote locations in Alaska. This aircraft is of optimum size to support a variety of missions. It should be noted that road systems do not exist in most of Alaska nor is there scheduled air service. The ability to operate a mid sized passenger/cargo aircraft is vital to the residents of Alaska. Without this size of aircraft operating in the combi mode, the same number of passengers may utilize smaller part 23 aircraft, without the additional safety requirements proposed in this exemption. This would result in higher risk to occupants per passenger mile flown.

In view of the small size of the CASA 212-200, a partition required by 14 CFR 25.855(b) could actually inhibit detection and smoke and fume elimination procedures.

F.S. Air Service is FAA approved for transportation of hazardous materials and meets all the applicable requirements of 49 CFR. The HAZARDOUS MATERIALS OPERATION MANUAL is contained in Appendix 2, Volume 1 of F.S. Air Service's Operations Manual. Their Ramp/Cargo, Shipping and Receiving personnel and Flight Crews are all properly trained with their Training Records maintained by the Station Manager.

Certain FAR 25 certified aircraft, and the CASA C-212 in particular are used to transport personnel and their belongings to remote locations in Alaska. F.S. Air Service only operates the CASA as an "On Demand Charter" with all the contents in the aircraft belonging to or pertinent to the occupants in the aircraft. This is a unique aircraft operating in a unique environment. Their customers include Federal employees such as FAA Site Maintenance Technicians, State Government Fish and Wildlife Officers, Law Enforcement Officers and [Bureau of Land Management] BLM fire fighters. They also support the oil industry, hunting and fishing lodges and mining camps. Air service is the only means of transportation into these remote locations.

It is the view of F.S. Air Service that with the combination of this exemption, approved seating configurations, and cargo restraint systems, passenger safety will be improved compared to other transportation means.

Federal Register publication

A summary of this petition was not published in the *Federal Register*. The FAA determined that good cause exists for waiving the publication requirement because this exemption would not set a precedent; given the relatively small number of CASA Model C-212-CC, -CD, and -DF airplanes involved; the urgent need for charter flights throughout Alaska and overseas; and given that a delay in acting on this petition would be detrimental to F.S. Air Service.

The FAA's analysis

F.S. Air Service has proposed the use of fire containment covers or blankets to afford sufficient fire protection. DOT/FAA/AR-96/5, "Evaluation of Large Class B Cargo Compartment's Fire Protection," June 1996, reported on the effectiveness of fire-containment covers (FCCs). FCCs are flexible, fire-resistant covers sized to fit over pallets and containers. Some of the woven fiberglass-based covers will pass the oil burner test [14 CFR part 25, Appendix F, Part III] required for cargo-compartment liners. The petitioner proposes to completely enclose cargo with FCCs to afford suitable protection and to place two fire detectors within each volume fully enclosed by the FCCs. The FAA expects that F.S. Air Service will load all cargo in one area, using as many FCCs as necessary to provide complete coverage (i.e., under, over, and around all

cargo), and will place two smoke/fire detectors within each FCC fully enclosed volume. F.S. Air Service has proposed the use of inexpensive, building-type smoke detectors. The building-type detectors may be used, provided that they incorporate sensor redundancy, provisions for testing, and remote indication to the cockpit (via either wire or wireless means).

The CASA Model C-212-DF, -CC and -CD airplanes—as operated in a “combi mode”—represent a single-deck configuration, used to carry both passengers and cargo. This “combi” configuration does not meet any of the current regulatory classifications for cargo compartments. The FAA finds, however, that the equipment and procedures proposed by F.S. Air Service, Inc., are appropriate and will provide an acceptable level of safety for the interior configuration of their CASA Model C-212-DF, -CC and -CD airplanes. F.S. Air Service, Inc., provided additional information confirming that the CASA Model C-212-DF airplane ventilation-delivery system, airplane maximum weight, and airplane performance are the same or nominally improved (i.e., the TPE331 power plant is slightly more powerful on the CASA Model C-212-DF) compared to the CASA Model C-212-CC and -CD airplanes. Therefore, we believe that means of compliance established in this exemption are appropriate and will provide an acceptable level of safety for the interior configuration of the CASA Model C-212-DF, -CC, and -CD airplanes.

The FAA’s decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not adversely affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, the petition of F.S. Air Service, Inc., 61241 South Airpark Drive, Anchorage, Alaska, for an exemption from the requirement of 14 CFR 25.857 to permit installation of a passenger/cargo configuration with building-type smoke and fire detectors, thus allowing the transportation of passengers and cargo on the main deck of CASA Model C-212-DF, -CC and -CD series airplanes, is hereby granted, with the following limitations:

- (1) A means must be provided to extinguish or control a fire without requiring a crewmember to enter the compartment.
 - (a) Fire containment covers (FCCs) of woven fiberglass-based materials, that will pass the oil-burner test of 14 CFR part 25, Appendix F, Part II, must be used.
 - (b) FCCs must completely surround all cargo, including under the cargo, except for obviously non-flammable items such as metal stock, machinery, and non-flammable fluids without flammable packaging.
 - (c) Cargo-restraint nets must be installed over the FCCs.

- (d) A valve must be installed in the FCCs to allow fire-fighting attempts without removing or loosening the FCCs.
- (2) A means must be provided to exclude hazardous quantities of smoke, flames, or extinguishing agent from any compartment occupied by the crew or passengers. The airplane flight manual (AFM) must include an approved procedure for elimination of smoke and fumes.
- (3) A separate, approved smoke-detector or fire-detector system must be installed in the cargo area, and a fire-and-smoke warning indicator must be provided in the cockpit. Smoke or fire detectors placed within each FCC fully enclosed volume provide such a means of fire and smoke warning.
- (4) The use of inexpensive, building-type smoke detectors, which are not indicated in the Technical Standards Order, is permitted. Detectors may be wired or wireless, and they must incorporate provisions for sensor redundancy, testing, and remote cockpit indication. At least two detectors must be placed within each FCC fully enclosed volume.
- (5) Crewmembers must receive training in the use of the fire extinguishers and the cargo fire-containment covers. They must also receive training in the use of the approved procedure for the elimination of smoke and fumes, which is specified in the AFM.
- (6) Two additional fire extinguishers must be carried on the aircraft.
- (7) Limitations (1) through (6) must be documented as operating limitations in the Limitations section of the AFM supplement.

These limitations supersede those specified in Exemption No. 7779A.

Issued in Renton, Washington on **DEC 23 2011**



John Piccola
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service